

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

Claims 1-7 (Canceled).

Please replace the current claims 1 to 7 by the following new claims.

8. (New) A torque detection device for a wave gearing, which device detects torque transmitted through a flexible external gear of the wave gearing, the device comprising:

at least one strain gauge unit mounted on a surface of the flexible external gear,

a bridge circuit constituted by the strain gauge unit, and

a signal processing circuit for detecting the torque on the basis of output signals from the bridge circuit, wherein

the strain gauge unit has a strain gauge pattern including at least one detection segment made from resistance wire, wherein

the detection segment is formed to have a circular arc shape of a grid pattern formed by portions of the resistance wire, and wherein

the grid pattern of the resistance wire has portions arranged at equal intervals and along a direction inclined by 45 degrees with respect to a tangential direction of the circular arc shape.

9. (New) The torque detection device for a wave gearing according to claim 8, wherein

the strain gauge pattern of the strain gauge unit includes one detection segment having a circular arc shape of 360 degrees.

10. (New) The torque detection device for a wave gearing according to claim 8, wherein

the strain gauge pattern of the strain gauge unit includes two detection segments having circular arc shapes of 180 degrees arranged on a same circle.

11. (New) The torque detection device for a wave gearing according to claim 8, wherein

the strain gauge pattern of the strain gauge unit includes four detection segments having circular arc shapes of 90 degrees arranged on a same circle.

12. (New) The torque detection device for a wave gearing according to claim 8, wherein

the strain gauge pattern of the strain gauge unit includes four detection segments having circular arc shapes of 45 degrees arranged on a same circle.

13. (New) A torque detection device for a wave gearing, which device detects torque transmitted through a flexible external gear of the wave gearing, the device comprising:

a composite strain gauge unit mounted on a surface of the flexible external gear and having a first strain gauge unit formed with a first detection segment and a second strain gauge unit formed with a second detection segment,

the first and second detection segments respectively have a circular arc shape of 360 degrees and are formed to have a grid pattern formed by portions of the resistance wire arranged at regular intervals,

the grid pattern of the resistance wire for the first detection segment has portions arranged at equal intervals and along a direction inclined by 45 degrees with respect to a tangential direction of the circular arc shape,

the grid pattern of the resistance wire for the second detection segment has portions arranged at equal intervals and along a direction inclined by 45 degrees with respect to a tangential direction of the circular arc shape, and

the first and second strain gauge units are superposed together so that the first and second detection segments are arranged concentrically and that said portions of the respective grid patterns thereof face and intersect perpendicular with each other.

14. (New) The torque detection device for a wave gearing according to claim 8, wherein the strain gauge pattern of the strain gauge unit includes a wiring pattern for connecting a plurality of the detection segments to each other so that the bridge circuit is constituted, and wherein

the detection segments and the wiring pattern are integrally formed.

15. (New) The torque detection device for a wave gearing according to claim 13, wherein the strain gauge pattern of the strain gauge unit includes a wiring pattern for connecting a plurality of the detection segments to each other so that the bridge circuit is constituted, and wherein

the detection segments and the wiring pattern are integrally formed.

16. (New) A torque detection device for a wave gearing, which device detects torque transmitted through a flexible external gear of the wave gearing, the device comprising:

at least one strain gauge unit mounted on a surface of the flexible external gear,

a bridge circuit constituted by the strain gauge unit, and

a signal processing circuit for detecting the torque on the basis of output signals from the bridge circuit, wherein

the strain gauge unit has a strain gauge pattern including at least one detection segment made from resistance wire, wherein

the detection segment is formed to have a circular arc shape of a grid pattern formed by portions of the resistance wire, and wherein

the grid pattern of the resistance wire has straight portions arranged at equal intervals and along a direction inclined with respect to a tangential direction of the circular arc shape and a radial direction of the circular arc shape.

17. (New) The torque detection device for a wave gearing according to claim 16, wherein the strain gauge pattern of the strain gauge unit includes a wiring pattern for connecting a plurality of the detection segments to each other so that the bridge circuit is constituted, and wherein

the detection segments and the wiring pattern are integrally formed.